LINGUAL ABSCESS: DIAGNOSIS AND TREATMENT

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Accepted 9 January 2004
Published online 12 May 2004 in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/hed.20018

Abstract: Background. Lingual abscesses are very rare, and as a result, the individual surgeon usually lacks experience in the diagnosis and therapy of this entity. We present four cases of abscesses of the tongue diagnosed and treated during the past 2 years.

Methods. The medical records, films, and charts of four patients with lingual abscess were retrospectively reviewed. The clinical presentation, radiographic features, treatment, and outcome of the cases were examined.

Results. Diagnosis was obtained by clinical examination and CT. In all cases, we avoided incision and drainage and preferred draining the abscess and aspirating pus with a large-bore needle through the inferior surface of the tongue. All patients responded remarkably well and did not have any recurrence.

Conclusions. Lingual abscesses are rare conditions. In contrast to the approach in cases of most deep neck space infections, a more conservative therapeutic approach by needle-aspiration is effective and has the advantages of not exacerbating the edema of the tongue and of avoiding airway compromise.

Keywords: tongue abscess; tongue diseases; abscess

The tongue, the most dominant structure of the oral cavity, is a frequent site of disease.1 Although it is subject to constant trauma, inflammatory conditions resulting from acute trauma are rare, probably because of the tongue’s rich blood supply and unique muscular anatomy, the thickness of the covering mucous membrane, and the cleansing action of saliva.2 Abscess of the tongue is a rare condition, and few otolaryngologists encounter it more than once during their careers. The major textbooks often omit description of this clinical entity, and in most cases, the physician who is faced with this problem solves it based on instinct rather than personal experience or general consensus.

CASE REPORTS

Case 1. A 67-year-old woman presented with drooling, malaise, and otalgia that had progressively worsened for 5 days. She had a history of type II diabetes mellitus. Her temperature was 37.6°C. Clinical examination revealed poor oral hygiene and significant swelling of the posterior third of the tongue. CT was performed, and a lingual abscess was diagnosed (Figure 1). Aspiration of the abscess cavity was performed with a large-bore needle of lumbar puncture through the undersurface of the tongue, lateral to the lingual frenulum and along the midline. This resulted in drainage of a large quantity of pus. The
The patient was treated with penicillin, gentamicin, and metronidazole, anti-inflammatory drugs, and an initial dose of 250 mg of hydrocortisone. Immediate improvement of the patient’s symptoms was noted, and she was discharged after 3 days with oral antibiotic therapy. There was no need for repeated aspiration of the abscess. The culture of the pus showed the presence of *Streptococcus viridans*.

**Case 2.** A 58-year-old man was referred to our department for odynophagia, drooling, and voice change. These symptoms began 12 days prior to presentation and worsened progressively. The patient had received oral amoxicillin–clavulanic acid.
acid from his primary care physician. He had no history of other disease and was afebrile during the course of his disease. Clinical examination revealed poor oral hygiene and swelling of the middle and posterior portion of the tongue. Flexible nasopharyngoscopy revealed edema of the epiglottis and left aryepiglottic fold. Immediate CT scanning revealed a small abscess of the tongue (Figure 2), and we proceeded with immediate aspiration of the contents as described before. The same triple antibiotic regimen of penicillin, metronidazole, and gentamicin was initiated, together with an initial bolus of 250 mg of hydrocortisone. The patient responded favorably to treatment and was discharged on the fourth day, with virtually no symptoms. The culture of the pus did not reveal any bacteria.

**Case 3.** A 44-year-old man presented with a 7-day history of difficulty in articulation and pain in the tongue. The patient was afebrile and had a history of organic psychosyndrome. Clinical examination revealed a marked tender swelling of the middle portion of the tongue extending to the left and edema of the floor of the mouth. CT was performed and revealed a large tongue abscess (Figure 3). Immediate aspiration of the swelling through the undersurface of the tongue yielded purulent material. The patient refused admission into the hospital and was released with oral antibiotic therapy. He was followed up in the outpatient clinic for several weeks and did not exhibit any signs of recurrence.

**Case 4.** A 65-year-old man with a history of diabetes mellitus type II presented with odynophagia and otalgia of 7 days' duration. He was receiving treatment from his primary physician, with clarithromycin 500 mg a day. His temperature was 37.8°C. Flexible nasopharyngoscopy revealed an abscess of the base of the tongue and edema of the epiglottis (Figure 4). Immediate aspiration through the undersurface of the tongue was performed. An antibiotic regimen of amoxicillin–clavulanic acid four times a day was initiated intravenously. Immediate improvement was noted, and the patient was discharged on the third day with oral antibiotics.

Table 1 provides the patients' data, as well as diagnosis and treatments.

### DISCUSSION

Lingual abscess is rarely described in most clinical textbooks. Most surgeons may never treat a lingual abscess. As a result, the literature is poor in describing the various features of diagnosis and treatment of this clinical entity, and only sporadic reference will be encountered in a literature search.

<table>
<thead>
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<th>Table 1. Comparison of the reported cases of lingual abscess.</th>
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<td><strong>Case 1</strong></td>
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<td>Age, y</td>
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<td>Sex</td>
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<tr>
<td>Presentation</td>
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<td>Duration of symptoms</td>
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<td>Temperature</td>
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<td>Diabetes mellitus</td>
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<td>Site of abscess</td>
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<td>Oral hygiene</td>
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<td>CT scan</td>
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<td>Treatment</td>
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<td>Antibiotics</td>
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The formation of a lingual abscess has been attributed to various causes. Trauma from ragged carious teeth or foreign bodies seems the most likely cause, but insect bites, fracture of the mandible, and even submucosal nasal septal resection have been implicated.\textsuperscript{3–6} Quite often, however, no specific cause can be identified. Such was the case in our patients. An interesting attempt at differentiation of lingual abscess from lingual-tonsillar abscess (abscess of the lingual tonsil) has been made by Newman and Johnson,\textsuperscript{7} and this might have been the case of our fourth patient. The incidence does not vary by socioeconomic status, age, or sex. It is characteristic that even a former president of the United States had a lingual abscess due to actinomycosis.\textsuperscript{8} The term “The President’s Syndrome” was used by his spokesman owing to the rarity of the condition.

Cultures of the purulent material grow Strep-
tococcus species, Staphylococcus, and anaer-
obes.\textsuperscript{3,9,10} Mixed cultures are often seen. In cases of actinomycosis, more aggressive intervention including incision and drainage of the cavity and long-term therapy may be considered essential. However, the cultures from most of our patients failed to reveal either actinomycosis or any other bacteria, probably because of prior antibiotic treatment, with the exception of case 1, in which the presence of \textit{S. viridans} was present.

Through coincidence, we came upon four cases of lingual abscess in the last 2 years. In three cases, the diagnosis was established using contrast-enhanced CT. In the fourth patient, it was clinically apparent that an abscess had formed. The value of CT has been reported by other authors,\textsuperscript{11} and this modality is invaluable in differentiating abscess from cellulitis. Cellulitis may be managed efficiently by antibiotics alone, whereas an abscess requires further intervention. Another important consideration in the differential diagnosis is false aneurysm of the lingual artery;\textsuperscript{12} this may occur after either penetrating trauma or weakening of the arterial wall secondary to inflammation. After diagnosing tongue abscess, most authors proceed to open incision and drainage of the abscess cavity. In most cases, however, especially those located in the posterior portion of the tongue, this procedure requires general anesthesia and endotracheal intubation, which is accompanied by increased risk owing to tongue swelling. Furthermore, exacerbation of the edema due to the procedure may require prolongation of the intubation of the patient or even tracheostomy.

When we managed our first patient, who although not in severe distress, was not in good general health because of diabetes and cardiovascular disease, we were reluctant to submit her to the dangers of general anesthesia and possible prolonged intubation. We followed a more conservative approach and preferred to drain the abscess by aspiration with a large bore needle through the inferior surface of the tongue (Figure 5). Aspiration alone as a therapeutic approach has also been described by other authors.\textsuperscript{6,9} Our first patient responded remarkably well and did not have a recurrence in the following weeks. We followed the same method in our remaining three patients, with the same excellent results. Repeated aspiration was not needed in any of our cases. The good prognosis and absence of recurrence in such cases treated with a minor surgical procedure (aspiration instead of incision) may probably be attributed to the same factors that render the tongue an organ very resistant to inflammation, such as the tongue’s rich vascular network, the presence of thick mucosa and bactericidal saliva, and, most of all, the strong lingual muscles, which by contracting may possibly limit the extension of inflammation and the cavity of the abscess. Our more conservative approach has the advantage of not exacerbating the swelling of the tongue, and in all cases, the airway was not compromised. However, close follow-up for a few days is necessary to identify and treat any recurrence of the disease.
CONCLUSION
Deep infection of the tongue is rare because of various factors contributing to local resistance. A more conservative therapeutic approach may be chosen in patients with lingual abscess, in contrast to those with most deep neck space infections. Pus drainage alone, by needle aspiration, is effective and has the advantage of not exacerbating the edema of the tongue and avoiding airway compromise.

REFERENCES